MULTIPLE TRANSACTIONS AND HOUSING PRICES:

A STUDY OF SPECULATION ACTIVITY IN VANCOUVER AND BURNABY, 1979-1981

prepared by

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for

Canada Mortgage and Housing Corporation

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20 October 1982

Mr. A. Wellman, Director
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Ottawa, Ontario K1A 0P7

Dear Mr. Wellman:

I am pleased to submit the final draft of our report examining the relationship between multiple transactions and housing prices.

If you have any questions regarding the conclusions or data base, please do not hesitate to call.

Sincerely,

A. Skaburskis, Ph.D.

as/bs
enc.

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INTRODUCTION

1.1 Scope

This study examines the relationship between speculative purchases and housing sales prices. It expands our 1981 study assessing the extent of multiple transactions in the City of Vancouver.* This study disaggregates the Vancouver city data by three local areas: West Side, East Side and Downtown. Data on Burnaby were developed and included in the data base. The time series were expanded to include 1981 transactions. A twenty percent sample of all transactions occurring within the two municipalities was developed and set up within an SPSS software package.

The expanded data allow the examination of multiple transactions occurring in 1981, the period showing a decline in housing prices. This analysis can show the extent to which speculative gains and losses cancel out. The longer series is necessary for the analysis of relationships between price change and speculative activity. The inclusion of Burnaby data will help assess the extent to which speculative activity changes with distance from the inner city.

1.2 Hypothesis

The hypothesis this study addresses asserts that speculative activity has no effect on housing prices. This hypothesis is set against an alternative hypothesis suggesting that speculation

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* "Multiple Sales of Housing Units within the City of Vancouver During 1979 and 1980, prepared for CMHC by Vischer Skaburskis, Planners, May 1981.

increases the amplitude of price fluctuations, that speculation pushes rising prices up higher and pulls price decreases lower than would be the case in the absence of speculation.

The alternative hypothesis is based on the belief that speculation creates a bandwagon effect. As prices rise, speculators enter the market and their demand further stimulates price changes. The increase in prices encourages more speculation which, in turn, increases the rate of inflation. When the peak in the price cycle is reached or passed, speculators unload and the increase in supply causes a more rapid and more severe price decrease than would have been the case had no speculation taken place. This alternative hypothesis is based on the view that speculators cannot tell when the market peaks and that the extent of speculative purchases increases with increasing housing prices. It is based on the premise that speculators sell their property after a price decline becomes apparent.

1.3 The Data on Transactions

Data on multiple transactions within the Vancouver and Burnaby markets were developed by a cross-comparison of the sales listed in the Teela Market Surveys. A purchase and sale that was completed within twelve months was defined as a "multiple-transaction". Agreements to sell were not included in the count of transactions. While a multiple transaction does not necessarily involve speculation, the counts include few non-speculative purchases. An owner occupant would

have had to buy, move in to the house or condominium and then decide to sell some eight to ten months later to be included in our count of multiple transactions. The average period of time between the completed purchases and sales included in the data base was less than four months in both Vancouver and Burnaby. Few held their property for as long as twelve months.

A data base including 1979 and 1980 transactions was set up during our 1981 project. It included multiple transactions that had been recorded in the Teela Market Surveys between January 1979 and March 1981. Due to the time needed to record and publish the transactions and the extensive backlogs at the Land Registry Office, current information could not be obtained. The delays caused a substantial undercount of multiple transactions. Since the delays also affect the count of total transactions, they do not seriously affect the estimate of the ratio of multiple sales and purchases to total transactions. Three other factors cause the counts to understate the extent of speculation. The first is due to the impossibility of identifying a multiple transaction until the property has been resold. The second is due to the speculators' use of an "agreement to purchase" rather than an "agreement to sell" or an actual transfer of deed. The third is due to the possibility that a "speculative purchase" becomes an investment when market conditions change.

The first problem, the undercounting due to the need to observe a sale before a multiple transaction can be identified, was overcome quite simply. The current study reviewed all 1980 transactions and

produced new counts. The ratio of multiple transactions identified in 1982 and 1981 was assumed constant for the 1981 purchase and 1979 sales series. The last ten months of the time series of multiple purchases and first ten months of the sales series were weighted by the monthly ratios of 1980 purchases identified in the 1981 and 1982 studies. To reduce fluctuations a three month moving average was taken. Due to the large discrepancy in the two counts for December, the analysis excludes the December 1981 data points. Table 1 presents the 1980 counts developed in 1981 and 1982 along with the index used to weight the data.

The second problem, the under-estimation of speculative activity due to lack of information on "agreements to purchase", cannot be overcome without the use of very expensive survey research techniques. Under the agreement to purchase arrangement a speculator offers a seller consideration for the exclusive right to buy the property at a particular price within a fixed time period. The speculator then looks for a buyer prepared to pay more. When he or she has found the buyer, the transaction is completed and the property is registered in the name of the new buyer. The agreement to purchase is not registered and no public record of the "flip" exists. Informed sources have suggested that the extent of speculation during the last half of 1980 was probably twice as high as reported in our 1981 study. They suggest that one in three transactions occurring within the most active months of 1980 was a "flip".

While the inability to gain data on options to purchase leads to an understatement of the extent of speculation, it does not

TABLE 1

ADJUSTMENT OF 1979 SALES & 1981 PURCHASES

Month	1982 Counts	1981 Counts	Adjustment Index*
1	118	127	1.00
2	103	91	1.00
3	154	139	1.20
4	136	123	1.13
5	89	73	1.18
6	94	71	1.25
7	117	76	1.40
8	159	96	1.58
9	165	79	1.80
10	197	82	2.19
11	137	22	3.68
12	81	6	8.65

* The index used to adjust the 1979 multiple sales and 1981 multiple purchases in the three month moving average of the months discrepancy in the counts developed in 1981 and 1982.

directly affect the analysis of the relationship between speculation and housing prices. For speculation to have a direct effect, it must affect the supply or demand for housing. The speculators who take possession of a dwelling unit have increased market demand and by holding the property reduce the supply of houses available to prospective owner occupants. The speculator who does not take possession and simply takes the option to purchase does not affect the supply of housing. He or she merely places a wedge between the price the previous owner gains and the price the new buyer pays. Since the options speculator does not remove units from the market he or she would not affect housing prices.

The third problem is the under-estimation of speculative purchases due to owners deciding to hold rather than resell their property. This study cannot identify purchases that are motivated by speculation unless a sale occurs within a twelve month period. A speculator buying property near the 1981 peak in price inflation may have held it after prices fell rather than take a loss. The speculator, thereby, becomes an investor.

The lack of data on the intent to "flip" real property reduces our ability to trace the price effects of purchases motivated by speculation. It is possible for speculators to be entering the market near the peak prices and help push the prices further upward. Since no data on these purchases are available, their price effects cannot be determined.

This problem requires that the conclusions of the analysis be qualified. The price effects the analysis can identify are due to

the actions of speculators who complete their multiple transactions and affect the short run supply and demand of housing. The study cannot show the more general effects of speculative motives but this qualification is not terribly serious. It offers the advantage of avoiding another definitional problem. If the study had the broader objective of tracing the effects of speculative motives, then it would have to rather arbitrarily define whose speculation is relevant. Home buyers speculate to some extent on the possibility of price increases. Many home buyers spend more on housing and buy larger or more expensive property when prices are rapidly rising to take a chance on gaining large increase in wealth.

1.4 The Data Base

This study examines the relationship between housing prices and multiple transactions. The transactions data from the 1981 study were added to 2100 multiple transactions identified by the current effort. Duplications were removed. Houses or condominiums selling for more than $500,000 or less than $20,000 were removed along with any multiple transaction in which the selling price was more than twice the purchase price. A total of 2283 multiple transactions were identified for Vancouver for the 1979-1981 period. Burnaby had 426 houses sold within twelve months of purchase.

The regression analysis was carried out on a data base summarizing the number of multiple sales, purchases and prices by month for Vancouver, Burnaby, Vancouver East Side, West Side and Downtown.

A twenty percent sample of all transactions recorded in Teela Market Surveys was drawn and the 7537 observations were entered in another SPSS file. Monthly counts and prices were developed and merged in with the summary statistics on multiple transactions.

The data base used in the analysis contains total counts of transactions by market and month, counts of multiple purchases and sales and the corresponding average prices for the corresponding categories. Variables identifying proportion of change in transactions and prices were constructed. Lag variables were also constructed to trace the effect of past sales prices on multiple purchases and sales. Logrithmic transformations were made on relevant variables for use in multiplicative specifications of relationships. Data on series describing demand conditions or the number of houses offered for sale were not sought at this time and could not be included in the data base. This restricts the analysis to the study of partial correlations among series describing prices and transactions.

DESCRIPTIVE STATISTICS

2.1 Extent of Speculation

A total of 2262 Vancouver City and 426 Burnaby multiple purchases were counted for the 1979-81 period. An average of 8.1 and 5.1 percent of recorded transactions in the two cities were identified as multiple purchases. Table 2a presents the monthly counts for Vancouver and Burnaby. Table 2b shows the multiple transactions for the three Vancouver submarkets. The first column lists the total recorded sales in each market area. The next two columns present the proportion of the transactions that involved a multiple purchase or sale.

The peak activity occurred during 1980, the year housing prices nearly doubled. In Vancouver at least 14.2 percent of all transactions were speculative buys. In Burnaby the rate was lower, 7.9 percent of the transactions were multiple purchases. Table 2b shows the most intense speculation to occur within the general Downtown area of Vancouver: 19.8% of 1980 buyers resold their property within twelve months. The statistics show a proportional decrease in speculative activity with distance from the centre of the metropolitan area. The extent of speculation is higher in the part of the region having higher land prices. With population growth, the land rent gradient would rise and become steaper toward the city centre. The greatest extent of speculation is in the land most likely to increase in value with rising aggregate demand for housing.

TABLE 2a

MULTIPLE TRANSACTIONS: VANCOUVER AND BURNABY

YR/MO	Vancouver ALL SALES	Vancouver MULTIPLE TRANSACTIONS % PURCHASES	Vancouver MULTIPLE TRANSACTIONS % SALES	Burnaby ALL SALES	Burnaby MULTIPLE TRANSACTIONS % PURCHASES	Burnaby MULTIPLE TRANSACTIONS % SALES
1979						
1	340	7.6	2.1	120	1.7	0
2	420	4.3	.7	105	2.9	0
3	355	6.8	2.0	180	1.1	.6
4	630	5.9	1.1	240	3.8	.4
5	790	5.2	1.9	170	7.1	1.8
6	885	5.3	2.9	175	5.7	2.9
7	850	4.4	3.4	205	4.9	2.0
8	1060	3.4	3.8	270	5.2	3.7
9	845	4.4	5.2	270	3.3	2.6
10	1095	2.9	6.0	185	8.1	4.3
11	865	9.0	5.3	350	6.9	2.6
12	770	13.9	4.3	135	14.8	8.1
1979 Count	8905	520	323	2405	130	59
%		5.8	3.6		5.4	2.4
1980						
1	515	22.9	14.6	130	10.8	7.7
2	665	15.5	4.7	120	15.8	15.0
3	890	17.3	5.6	275	12.4	6.2
4	815	16.7	7.1	270	8.9	4.8
5	775	11.5	8.8	235	8.5	6.0
6	845	11.1	8.4	200	6.0	5.5
7	1060	11.0	8.4	280	5.4	5.7
8	1195	13.3	9.4	330	5.2	6.4
9	1035	15.9	15.4	310	5.2	6.8
10	1155	17.1	23.9	290	6.9	9.0
11	1050	13.0	19.9	380	7.6	7.6
12	885	9.2	18.5	300	9.3	7.3
1980 Count	10,885	1550	1354	3120	248	218
%		14.2	12.4		7.9	7.0
1981						
1	765	7.1	10.5	250	6.4	10.4
2	575	6.3	17.6	185	5.4	13.5
3	700	4.4	14.9	225	2.2	10.7
4	580	2.9	12.1	165	1.8	5.5
5	195	3.1	14.9	150	1.3	8.7
6	450	3.3	9.3	170	4.1	9.4
7	400	1.0	7.0	130	1.5	10.8
8	320	.9	7.8	100	0	4.0
9	360	1.9	6.9	95	0	4.2
10	355	1.7	5.6	60	0	3.3
11	535	1.1	3.4	200	1.0	2.0
12	285	2.5	6.7	120	0.8	3.3
1981 Count	5520	192	561	1850	48	145
%		3.4	10.2		2.6	7.8
3-YEAR COUNT	27,765	2262	2238	8295	426	422
%		8.1	8.1		5.1	5.1

TABLE 2b

COUNTS OF MULTIPLE TRANSACTIONS: VANCOUVER SUB-MARKETS

	Eastside Vancouver			Westside Vancouver			Downtown Vancouver		
		MULTIPLE TRANSACTIONS			MULTIPLE TRANSACTIONS			MULTIPLE TRANSACTIONS	
YR/MO	ALL SALES	% PURCHASES	% SALES	ALL SALES	% PURCHASES	% SALES	ALL SALES	% PURCHASES	% SALES
1979									
1	255	6.7	2.4	80	10.0	1.3	5	20.0	0
2	235	4.3	1.3	175	3.4	0	5	40.0	0
3	210	4.3	1.0	125	11.2	2.4	20	5.0	10.0
4	355	6.8	.8	240	5.4	1.7	35	0	0
5	415	5.5	2.2	315	4.4	1.6	60	6.7	1.7
6	405	4.9	3.7	425	5.2	2.4	55	9.1	1.8
7	390	4.9	4.6	430	3.7	2.1	25	8.0	8.0
8	535	4.3	3.6	480	2.5	3.9	45	2.2	4.4
9	340	4.4	5.9	455	4.2	4.6	50	6.0	6.0
10	650	2.5	5.8	365	3.6	6.8	80	3.8	3.8
11	445	9.2	5.6	360	9.4	4.7	50	6.0	8.0
12	445	11.5	2.5	290	16.6	6.2	35	22.9	11.4
1979 Count	4680	268	169	3740	219	132	465	33	24
%		5.7	3.6		5.6	3.6		7.1	5.2
1980									
1	235	23.0	15.7	240	21.7	12.5	40	30.0	20.0
2	335	15.8	4.8	300	13.3	3.3	25	40.0	20.0
3	500	18.2	5.0	360	15.0	5.0	30	30.0	23.3
4	435	16.6	5.7	345	16.8	9.0	20	30.0	10.0
5	410	10.0	9.5	340	12.9	7.6	25	16.0	12.0
6	425	11.3	7.1	375	11.2	9.6	40	10.0	12.5
7	540	11.7	7.6	485	9.9	8.2	30	20.0	26.7
8	645	14.3	9.8	515	12.0	8.7	35	14.3	11.4
9	580	14.0	17.2	415	19.3	12.5	35	11.4	20.0
10	610	20.0	25.6	495	12.9	22.6	50	22.0	16.0
11	555	15.0	21.3	420	9.8	20.2	75	17.3	8.0
12	535	8.0	16.3	295	10.5	22.4	55	12.7	20.0
1980 Count	5805	843	735	4585	616	551	460	91	74
%		14.5	12.7		13.4	12.0		19.8	16.1
1981									
1	455	7.5	11.0	240	6.3	10.4	60	8.3	8.3
2	360	5.3	13.9	185	8.1	24.9	30	6.7	16.7
3	360	4.7	16.9	240	5.0	15.8	95	2.1	5.3
4	245	4.5	14.3	310	1.6	9.0	20	5.0	35.0
5	85	1.2	15.3	95	3.2	14.7	10	20.0	20.0
6	220	4.1	9.5	215	2.8	7.9	15	0	26.7
7	200	1.5	8.5	185	.5	4.3	15	0	20.0
8	185	.5	7.6	130	0	6.9	5	40.0	40.0
9	215	1.4	5.6	120	3.3	8.3	25	0	12.0
10	175	1.7	7.4	155	1.9	4.5	25	0	0
11	315	1.3	2.9	190	1.1	3.7	25	0	8.0
12	155	3.2	7.7	55	1.8	7.3	65	15.0	4.6
1981 Count	2970	112	307	2120	70	213	390	15	41
%		3.8	10.3		3.3	10.5		3.8	10.5
3-YEAR COUNT	14,620	1223	1223	11,505	905	905	1495	139	139
%		8.3	8.3		7.9	7.9		9.0	9.3

Table 3 presents the adjusted monthly counts of multiple purchases or sales for Vancouver and Burnaby. The raw counts of purchases for the last ten months of 1981 were adjusted using the index presented in Table 1. The adjustments account for the fact that a multiple transaction requires the identification of both a buy and a sale and the available data at the end of the study time frame allow the identification of a fraction of all multiple purchases occurring at the end of the study period. The adjustment leaves the 1979 and 1980 series unaffected. It increases the 1981 buys from 192 to 291. Since the estimated adjustment factor for December 1981 is an outlyer, this data point was dropped and the final series used in the regression analysis is cut short by one month. As a result the adjustments added only 38 counts to the 1981 series on multiple purchases.

Table 4 presents the monthly net multiple transactions. The net is the difference between the number of purchases and sales. Negative numbers indicate that more properties were sold than bought by speculators. The series is remarkable in that it shows the large extent to which monthly purchases and sales cancel out. The largest net change in market demand occurred in March of 1980. The 104 net buys represent 11.7 percent of all transactions. While the net effect of speculation on aggregate demand is much lower than the impression created by review of the buy and sell series independently, the timing of transactions differs. The net increase in the supply of ownership housing occurs at the end of 1979 and 1980, the periods

TABLE 3

ADJUSTED MULTIPLE PURCHASES AND SALES:
VANCOUVER, BURNABY

	Vancouver		Burnaby	
YR/MO	PURCHASES	SALES	PURCHASES	SALES
1979				
1	26	32	2	1
2	12	7	3	1
3	24	35	2	1
4	37	16	9	2
5	41	29	12	6
6	47	42	10	8
7	37	43	10	6
8	36	52	14	13
9	37	52	9	8
10	32	73	15	9
11	78	46	24	9
12	107	33	20	11
Total	520	460	130	75
1980				
1	118	75	14	10
2	103	31	19	18
3	154	50	34	17
4	136	58	24	13
5	89	68	20	14
6	94	71	12	11
7	117	89	15	16
8	159	112	17	21
9	165	159	16	21
10	197	276	20	26
11	137	209	29	29
12	81	164	28	22
Total	1550	1362	248	218
1981				
1	54	80	16	26
2	36	101	10	25
3	35	104	5	24
4	20	70	3	9
5	7	29	2	13
6	19	42	9	16
7	6	28	3	14
8	5	25	1	4
9	13	25	1	4
10	13	20	1	2
11	22	18	7	4
12	61*	19*	9*	4*
Total	291	561	65	157
3-YEAR TOTAL	2361	2383	443	450

* Excluded from the regression analysis.

TABLE 4

ADJUSTED NET MULTIPLE PURCHASES:
VANCOUVER AND BURNABY

YR/MO	VANCOUVER	BURNABY
1979		
1	- 6	2
2	11	+ 3
3	+ 11	- 3
4	21	7
5	12	6
6	5	2
7	- 6	4
8	- 16	1
9	- 15	1
10	- 41	6
11	32	15
12	74	9
Total	82	53
1980		
1	43	4
2	72	1
3	104	17
4	78	11
5	21	6
6	23	1
7	28	- 1
8	47	- 4
9	6	- 5
10	- 79	- 6
11	- 72	0
12	- 83	6
Total	188	30
1981		
1	- 26	- 10
2	- 65	- 15
3	- 69	- 19
4	- 50	- 6
5	- 22	- 11
6	- 23	- 7
7	- 22	- 11
8	- 20	- 4
9	- 12	- 4
10	- 7	- 2
11	4	3
12	42*	5*
Total	- 270	- 81
3-YEAR TOTAL	0	2

* Excluded from the regression analysis.

showing prices increases. The net sales remain high during the 1981 price decline.

2.2 Prices, Holding Periods and Profits

Tables 5a and 5b list the average monthly price for all transactions. The second and third columns give the average multiple purchase and sales price divided by the average price of all transactions occurring during the month. The third column lists the ratio of average monthly multiple sales price to purchase price. The statistics show speculators to pay lower than average prices for property bought in 1979. In 1980 and 1981 the price speculators pay is, on average, no different from the price homeowners pay for housing. The sales by speculators during the 1980 price increase and 1981 decline consistently show higher than the average prices of housing sold within the city. The data are consistent with the view that speculators do not buy average priced housing, wait for an average price increase and sell at average prices. Speculators find the "bargains".

Table 6 lists the average number of days property is held by speculators before the resale is completed. In Vancouver, the average holding period is 115 days. In Burnaby, it is 141 days. Since a sale may take up to several months to be completed, the statistics show that most speculators place their property on sale soon after acquiring it. The average holding period for sales occurring during the 1981 price decline is much longer and approaches the one year limit set in the definition of "multiple purchase".

TABLE 5a

AVERAGE PRICE OF MULTIPLE PURCHASES AND SALES: VANCOUVER

YR/MO	AVERAGE PRICE ALL SALES	RATIO OF MULTIPLE PURCHASE PRICE TO CITY AVERAGE SALES PRICE	RATIO OF MULTIPLE SALES PRICE TO CITY AVERAGE SALES PRICE	RATIO OF MULTIPLE SALES PRICE TO MULTIPLE PURCHASE PRICE
1979				
1	77,431	.918	1.386	1.51
2	78,973	.759	.595	.74
3	99,070	.784	.611	.78
4	82,515	.900	.847	.94
5	99,759	.821	.725	.88
6	92,258	.999	.997	.997
7	84,537	1.064	1.096	1.03
8	86,888	.836	.982	1.17
9	97,448	.892	1.193	1.33
10	83,814	.696	.977	1.40
11	85,899	.869	1.085	1.24
12	79,655	1.034	1.227	1.18
1980				
1	99,131	.988	1.291	1.30
2	88,254	1.009	1.131	1.12
3	95,584	.886	1.041	1.17
4	109,569	.813	.929	1.14
5	97,781	1.054	1.003	.951
6	106,898	.971	.989	1.01
7	112,481	1.056	1.035	.980
8	108,408	.937	.941	1.004
9	110,558	1.034	.987	.954
10	116,272	1.027	1.001	.974
11	133,909	.976	1.077	1.052
12	130,077	1.077	1.256	1.16
1981				
1	165,167	.827	1.006	1.216
2	167,805	1.056	1.145	1.084
3	165,080	.891	1.149	1.289
4	169,804	.900	1.174	1.31
5	165,492	1.398	1.331	.952
6	17,580	1.119	1.267	1.132
7	160,686	.728	1.525	2.094
8	147,466	.814	1.159	1.59
9	145,564	1.517	1.308	.862
10	141,149	.650	1.365	2.1
11	124,198	.981	1.422	1.44
12	147,907	.754	1.189	1.58

TABLE 5b

AVERAGE PRICE OF MULTIPLE PURCHASES AND SALES: BURNABY

YR/MO	AVERAGE PRICE ALL SALES	RATIO OF MULTIPLE PURCHASE PRICE TO CITY AVERAGE SALES PRICE	RATIO OF MULTIPLE SALES PRICE TO CITY AVERAGE SALES PRICE	RATION OF MULTIPLE SALES PRICE TO MULTIPLE PURCHASE PRICE
1979				
1	77,504	1.219	1.139	.934
2	26,652	.662	.569	.860
3	72,894	1.039	1.014	.976
4	66,327	1.079	.922	.887
5	72,285	1.003	.917	.914
6	78,909	1.731	1.508	.871
7	67,190	.873	.787	.901
8	74,304	.795	.716	.900
9	69,019	.953	.872	.915
10	77,565	1.125	.958	.852
11	69,439	1.367	1.004	.734
12	75,470	1.260	.950	.754
1980				
1	59,746	2.143	1.654	.771
2	70,042	1.190	.877	.737
3	72,624	1.436	1.036	.720
4	86,746	1.263	.937	.742
5	102,840	.939	.697	.742
6	76,685	1.057	.822	.778
7	94,850	1.174	.800	.680
8	89,609	1.622	1.083	.668
9	80,432	1.497	1.011	.675
10	86,236	1.472	1.098	.746
11	108,082	1.396	1.104	.79
12	123,[illegible]30	1.080	.898	.831
1981				
1	133,932	1.059	.910	.859
2	124,467	1.428	1.222	.855
3	157,949	.679	.550	.81
4	149,815	.981	.722	.736
5	121,393	1.256	.259	.206
6	150,815	.849	.690	.813
7	128,285	1.333	1.185	.888
8	138,745	0	0	0
9	120,674	0	0	0
10	121,458	0	0	0
11	115,100	.851	.808	.949
12	125,283	.631	.471	.746

TABLE 6

AVERAGE HOLDING PERIOD: VANCOUVER AND BURNABY

YR/MO	Vancouver AVERAGE DAYS HELD PURCHASE DATE	Vancouver AVERAGE DAYS HELD SALES DATE	Burnaby AVERAGE DAYS HELD PURCHASE DATE	Burnaby AVERAGE DAYS HELD SALES DATE
1979				
1	137.5	9.0	168.5	0
2	146.8	5.7	166.3	0
3	126.4	25.1	129.0	73.0
4	96.9	45.9	89.5	0
5	97.5	39.6	144.5	31.0
6	94.5	56.6	160.6	54.2
7	99.5	56.5	123.0	53.3
8	76.7	91.8	112.4	106.4
9	59.1	85.7	110.6	78.6
10	72.8	115.3	113.8	78.8
11	175.7	90.9	242.2	93.3
12	209.3	80.3	183.7	112.1
1980				
1	91.4	22.1	171.4	99.1
2	162.2	75.4	148.7	133.2
3	160.3	69.1	173.5	151.6
4	124.5	73.1	163.0	105.3
5	116.1	103.4	135.5	121.2
6	102.0	94.3	110.9	112.6
7	119.8	109.7	118.7	110.3
8	108.4	122.4	178.7	107.2
9	90.1	125.7	145.8	178.8
10	81.9	112.3	118.8	221.9
11	114.4	128.5	110.9	159.5
12	115.4	111.9	163.9	148.7
1981				
1	78.3	125.7	80.9	127.0
2	77.7	115.4	100.7	123.2
3	118.7	121.1	8.0	136.0
4	126.1	150.7	56.3	119.0
5	141.7	175.6	14.0	123.5
6	56.3	189.7	104.3	186.0
7	129.3	183.5	18.5	192.0
8	118.0	239.8	0	217.0
9	38.1	207.8	0	297.8
10	68.2	262.2	0	288.5
11	58.7	203.8	72.0	352.5
12	30.4	225.5	48.0	245.7
3-YEAR AVERAGE	115.4	115.4	141.3	141.3

Table 7 lists the average difference between the purchase and sales price of multiple transactions. The three year average is just over $30,446 in Vancouver and $24,166 in Burnaby. Since the Vancouver City average is taken over 2268 cases, the total net gains by speculators who took possession of their property was $69 million over the three year period. This represents a lower limit estimate of gains made by speculators operating within the City of Vancouver. If speculators using the "options to purchase" method are included, the total net gains through speculation may well exceed $100 million.

The statistics presented in Table 7 show the average profit and, therefore, account for transactions leading to a loss. Out of the 2268 multiple transactions only 75 created a loss for the purchaser. The average size of the loss was $21,099. The distribution of the losses across time is more or less even. The statistics show a decrease in the number of losses during the 1981 price decline. Only four losses were identified for the entire year. Speculators purchasing property near the peak of the price increase did not sell at a lower price, they became "investors". Rather than taking a loss, people buying houses to speculate held their property off the market or tried and are trying to sell at too high a price.

2.3 Summary

The counts of multiple purchases and sales show a relatively small net impact on supply and demand during any one month. The sale of property held for speculation cancels much of the demand

TABLE 7

AVERAGE PROFIT: VANCOUVER AND BURNABY

YR/MO	Vancouver AVERAGE PROFIT PURCHASE DATE	Vancouver AVERAGE PROFIT SALES DATE	Burnaby AVERAGE PROFIT PURCHASE DATE	Burnaby AVERAGE PROFIT SALES DATE
1979				
1	21,352	36,500	6,200	0
2	10,110	4,463	8,000	0
3	11,435	10,464	1,800	6,400
4	8,248	8,700	10,367	2,000
5	15,059	15,846	6,204	1,483
6	15,492	13,176	17,554	11,200
7	18,434	10,931	5,762	3,325
8	14,596	14,250	5,874	7,990
9	12,495	13,224	5,626	4,182
10	12,313	13,615	12,958	4,207
11	23,878	11,897	25,206	6,822
12	25,387	12,554	23,370	13,805
1980				
1	38,738	38,507	29,746	10,828
2	27,975	13,403	21,982	9,532
3	30,921	14,050	29,084	8,802
4	24,608	17,637	28,338	18,876
5	37,909	19,956	24,850	29,879
6	32,576	15,886	18,010	16,743
7	42,114	18,912	35,417	11,572
8	32,727	19,146	48,243	17,695
9	36,909	23,678	39,084	26,750
10	29,626	25,192	32,320	23,023
11	38,484	37,118	30,852	38,524
12	36,578	42,503	22,432	34,013
1981				
1	33,539	44,042	20,075	32,392
2	48,822	52,251	25,580	40,218
3	35,591	46,981	20,400	33,408
4	35,918	53,708	38,800	29,139
5	58,917	58,382	21,000	29,215
6	45,558	60,228	23,929	40,337
7	11,913	59,810	19,000	29,996
8	16,667	31,643	0	37,800
9	49,929	40,120	0	28,650
10	13,361	56,537	0	40,500
11	23,886	34,818	5,000	17,500
12	11,507	36,686	2,000	21,625
3-YEAR AVERAGE	$30,446	$30,446	$24,166	$24,166

side effect of speculative purchases. For analytic purposes, a large proportion of the speculative component of the housing market can be seen as a separate entity within which speculators buy and sell to each other. Nevertheless, the series presented in Table 4 shows temporal change in the net effect of speculation. The size of the housing stock component that is effectively removed from the homeownership market varies with price changes. The statistics in Tables 4 and 5 show the number of purchases to exceed sales during the lower price period within 1980 and sales exceed observed multiple purchases during the peak of the price cycle in late 1980 and early 1981.

The observation of the reversal in "net purchases" by speculators before the peak in housing prices would support the view that the decline in the size of the housing stock component taken off the market by speculators when prices were high put a break on the price inflation of the last six months of 1980. This conclusion, however, must be qualified because we cannot be sure that the size of housing stock available for prospective homeowners did increase. Since some speculators became investors after the peak in inflation was past, some shift did occur away from the homeownership toward the rental stock. If the magnitude of this shift was large, then the available data will not identify the true effect of speculative motives on price levels. However, if the shift was large, then the increase in rental stock after housing prices peaked would cause a relative decline in the price of rental housing. The speculator who got trapped at the end of rapidly increasing housing prices and became an investor may have helped effect an income transfer from new homeowners to renters.

3

HOUSING PRICES AND SPECULATION

3.1 General Approach

Ideally, the relationship between speculation and housing prices would be sought by means of an econometric model specifying housing prices as a function of demand and supply conditions. Since housing prices are set by the interaction of demand and supply schedules, the model would involve two simultaneous equations and the specification and estimation procedure would have to recognize and attempt to overcome the serious identification of structures problem. Since the data base does not contain series independently describing demand and supply schedules, the analysis must proceed by relying on simple models that identify the partial correlations between housing prices and price changes with the level of speculative and other transactions.

The general approach to the data involves the search for correlations between housing prices and changes in prices and the extent and changes in speculative purchases and sales. Since the extent of speculation is likely to vary with the overall activity of the housing market, the series describing the number of all transactions and changes in the number will be entered as control variables. When examining the relationship between price levels and speculative activity, the general trend in housing prices will be controlled for by entering the sequence series identifying the time periods.

Two specifications of the functional form of the model will be used. One is the log linear specification describing a multiplicative

relationship among the variables on the right hand side of the equation. The other is the additive specification.

3.2 The Multiplicative Specification

The log linear model will be used to examine the relationship between price levels and levels in speculative and other activity. The validity of this specification is based on the belief that the structural parameters underlying the relationship between housing prices and the effect of speculation activity are formed by a consistent price elasticity of supply and demand. The specification is based on the belief that a proportional change in demand for units generated by speculators will have a consistent proportional effect on housing prices. The model is in the following form:

1) $$P_t = c \cdot M.BUY_t^{\beta_1} \cdot M.SELL_t^{\beta_2} \cdot ALL.SALES_t^{\beta_3} \cdot T_t^{\beta_4} \cdot E_t$$

and

$$\beta_1 = \frac{M.BUY_t}{P_t} \left. \frac{\partial P_t}{\partial M.BUY_t} \right|_{P_t,\ M.BUY_t}$$

where:

P_t	is the average price of houses sold during time period t
$M.BUY_t$	is the number of multiple purchases during period t
$M.SELL_t$	is the number of multiple sales during period t
$ALL.SALES_t$	is the number of market transactions occuring during period t
T_t	is the sequence series identifying time periods and takes the numeric value of t
E_t	is the error term accounting for the effect of other factors that are not accounted for by the series in the model.

The parameters of the model will be estimated separately using the Vancouver and Burnaby data. When the data for both Vancouver and Burnaby are used in the same regression, the cities will be identified by a dummy variable, CITY, taking the value of 0 for Vancouver and 1 for Burnaby. Since changes in demand and supply generated by speculative activity may take some time before they affect housing prices, these series will also be entered with a one month lag.

This model considers speculative purchases as having an incremental effect on the demand for housing. Given that price levels are following a general trend described by T and are related to the level of activity in the housing market, an additional increase in demand by speculators would have the effect of pushing prices upward. An increase in sales would expand the supply of houses available to home buyers and would, therefore, reduce housing prices.

3.3 The Additive Specifications

The log linear model described by equation 1 treats multiple purchases and sales as the independent variables affecting the level of housing prices. This is in line with the alternative hypothesis suggesting that speculative activity increases the amplitude of housing price fluctuations. This alternative hypothesis can also be tested by regressing series describing changes in the amount of speculation over time against changes in housing prices. This model

removes the level of market activity and housing prices from the two sides of the equation. The constant term in this model describes the systematic increase in housing prices brought about by a stable growth in housing demand. The series describing the proportional change in multiple purchases and sales affect the inflation rate by changing short-term demand and supply conditions. If speculative purchases cause prices to increase we should expect to observe a positive partial correlation between change in price and change in the extent of speculative buying after controlling for the effect of changes in overall level of market activity.

The second model used to examine the relationship between price and speculation includes series describing the proportional changes in price and speculative activity. Its specification is as follows:

$$2)\quad \frac{(PRICE_t - PRICE_{t-1})}{(PRICE_t + PRICE_{t-1})} = c + \sum_{i=1}^{3} \left[\frac{(Q_t - Q_{t-1})}{(Q_t + Q_{t-1})} \right]^{\beta_i} + e_t$$

where:

- The left hand side of the equation describes the proportional change in prices,
- The right hand side contains the three series describing the proportional change in multiple purchases, sales and total number of transactions.

3.4 Alternative Specifications

The two models described above consider multiple purchases and sales as factors affecting prices by changing demand and supply conditions. Speculative activity can also be seen as a function of changing housing prices. This view leads to a model placing multiple

purchases or sales on the left hand side of the equation and considering price as the independent variable. Under the alternative hypothesis, stating that speculation increases the amplitude of price fluctuations due to the "bandwagon" effect, the level or change in proportion of multiple purchases should increase with rising housing prices. The rise in housing prices should, under this hypothesis, induce more speculation and, therefore, yield a positive partial correlation between the two series.

The alternative specifications of the models place multiple purchases and sales on the left hand side of the equation and the price and transaction series on the right hand side. The lagged as well as the current price series is entered in the model to account for the possibility of a delay between a price change and the completion of a multiple transaction.

3.5 Means, Standard Deviations and Correlations

Tables 8 and 9 present the means and standard deviations of the series used in the two models. It describes the series for the pooled Vancouver and Burnaby regressions as well as for each city. The third column lists the correlation with the price series. Of interest is the correlation between prices and multiple purchases. Table 8 shows a negative correlation. The number of multiple purchases decreases at higher price levels. The positive correlation with sales shows increasing sales to be positively correlated with price levels. In both the Vancouver and Burnaby series the level of all transactions

TABLE 8

MEANS, STANDARD DEVIATIONS AND CORRELATIONS FOR THE MULTIPLICATIVE SPECIFICATIONS*

VARIABLE	Vancouver and Burnaby			Vancouver			Burnaby		
	MEAN	ST.DEV.	CORR.	MEAN	ST.DEV.	CORR.	MEAN	ST.DEV.	CORR.
L. $Price_t$	11.55	.29	1.00	11.64	.26	1.00	11.45	.29	1.00
L. $Price_{t-1}$	11.53	.29	.90	11.63	.27	.91	11.44	.28	.87
L. All $Sales_t$	5.89	.76	.11	6.51	.44	-.44	5.27	.42	-.21
L. All $Sales_{t-1}$	5.87	.76	.19	6.49	.45	-.27	5.25	.43	-.07
L.M. $Buys_t$	2.99	1.29	-.104	3.80	1.01	-.43	2.19	1.02	-.44
L.M. $Buys_{t-1}$	2.98	1.32	-.002	3.80	1.00	-.30	2.15	1.05	-.30
L.M. $Sales_t$	3.10	1.19	.38	3.94	.78	.21	2.26	.90	.21
L.M. $Sales_{t-1}$	3.12	1.18	.44	3.97	.72	.26	2.26	.90	.32
L.T. Months	2.71	.74	.70	2.71	.74	.78	2.71	.74	.71
City	.50	.50	-.34	na			na		
n. cases	68			34			34		

* All variables except the City dummy are the natural logarithms of the average monthly price or the count of transactions.

TABLE 9

MEANS, STANDARD DEVIATION AND CORRELATIONS FOR THE PROPORTIONAL PRICE CHANGE SPECIFICATIONS*

VARIABLE	Vancouver and Burnaby			Vancouver			Burnaby		
	MEAN	ST.DEV.	CORR.	MEAN	ST.DEV.	CORR.	MEAN	ST.DEV.	CORR.
R. $Price_t$	.011	.130	1.000	.014	.112	1.000	.009	.148	1.000
R. $Price_{t-1}$	.016	.129	-.417	.018	.109	-.431	.014	.149	-.410
R. All $Sales_t$	.012	.345	-.125	.008	.313	-.227	.016	.379	-.061
R. All $Sales_{t-1}$	-.009	.129	.205	.002	.307	.176	-.021	.329	.227
R.M. $Buys_t$	-.001	.589	.116	.007	.457	.061	-.010	.704	.143
R.M. $Buys_{t-1}$	-.039	.533	-.026	-.020	-.452	-.129	-.058	.610	.030
R.M. $Sales_t$	-.138	1.144	.008	-.125	-.755	.171	-.151	1.445	-.057
R.M. $Sales_{t-1}$	-.162	1.147	.093	-.156	-.775	-.224	-.168	1.44	.223
City	.500	.504	-.019	na	na	na	na	na	na
n. cases	66			33			33		

* The proportional change variables were constructed as follows:

$$R.Price = 2\,(Price_t - Price_{t-1}) \,/\, (Price_t + Price_{t-1})$$

is negatively correlated with price: the higher the price the fewer the number of transactions. Increases in the number of transactions, increases in the number of people buying property do not explain the price inflation of the latter part of 1980.

Table 9 shows a positive correlation between the proportional change in multiple purchases and the proportional change in the average price of houses sold during the current month. The correlation co-efficient between change in multiple purchases and the one month lagged price series is negative (-.268). The lagged price series is also negatively correlated with current prices. This may be due to monthly oscillating price changes. It may be due to monthly changes in the quality of housing most frequently bought. Variables on the type of houses bought and sold are not included in the data base.

3.6 Estimated Coefficients using Price as the Dependent Variable

Table 10 presents the results obtained by using the natural log of price as the dependent variable. Only series with coefficients differing from zero at the .10 probability level were entered. In all three regressions the coefficient for the multiple purchase series is negative. The Vancouver regression shows that the partial correlation coefficient remains negative after controlling for the long-term trend in housing prices, the level of the current and lagged months transactions and the level of multiple sales. The Vancouver regression also shows a positive partial correlation between multiple sales and housing prices. In the Vancouver regression,

TABLE 10

LOG LINEAR REGRESSION WITH LOG_e $PRICE_t$ AS DEPENDENT SERIES

	Vancouver and Burnaby			Vancouver			Burnaby		
	b	T-STAT	SIG.	b	T-STAT	SIG.	b	T-STAT	SIG.
log_e N. Buy_t	-.158	-5.53	.0000	-.103	-3.084	.0046	-.103	-3.352	.0023
log_e N. $Sell_t$	.107	2.78	.0073	.220	4.644	.0001	ne	ne	ne
log_e All $Sales_t$	ne	ne	ne	-.159	-1.921	.0650	ne	ne	ne
log_e All $Sales_{t-1}$	ne	ne	ne	-.156	-2.117	.0432	ne	ne	ne
log_e T	.191	5.57	.0000	.155	4.626	.0001	.256	6.103	.0000
City *	-.269	-4.86	.0000	na	na	na	na		
Constant	11.305	107.43	.0000	12.800	26.279	.0000	10.982	77.673	.0000
R^2	.7446			.8498			.6340		
F-Statistic	45.919			28.332			26.845		
Significance	.0000			.0000			.0000		
n. cases	68			34			34		

* City = 0 for Vancouver
= 1 for Burnaby

the series on the right hand side of the equation account for 85% of the variation in the housing prices series.

The proportional change specification did not yield consistent results across the three regressions. The pooled regression showed no statistically significant results. The Vancouver data yielded a negative partial correlation between price and multiple sales and a negative correlation between price and the proportional change in all transactions. The two variables account for only 18% of the variance in the proportional change in the average monthly price of housing sold in the City of Vancouver. The regression run on the Burnaby data did not yield any statistically significant coefficients.

The data do not show that proportional changes in speculative activity are related to changes in housing prices. The log linear model shows the level of multiple purchases to be high when prices are low. It shows multiple sales to increase with the level of housing prices. These findings do not permit the rejection of the null hypothesis in favour of the alternative hypothesis asserting that speculative purchases push prices up and sales cause prices to decline. The finding of statistically significant coefficients with signs opposite to the ones that would support another alternative hypothesis suggesting that speculation levels are affected by prices and price changes more than they affect prices. The findings suggest that the multiple purchase and sales series should be considered as the dependent variables with the price series placed on the right hand side of the equation.

3.7 Multiple Purchases as the Dependent Variable

Table 11 presents the coefficients estimated by placing multiple purchases on the left hand side of the equation and the price, all transactions and multiple sales series on the right hand side. The results show speculative purchases to increase with the general level of housing activity and the level of multiple sales. The one month lagged, rather than the current, price series entered the equation with a non-zero coefficient. It shows that a price decline is followed one month later by increases in speculative purchases. Table 12 shows that consistent results are obtained by using the additive proportional change model: an increase in housing prices is followed by a drop in speculative purchases.

The findings do not support the alternative hypothesis advanced in section 1.2 of this report. The findings are consistent with the view that speculation in housing, like speculative activity in other markets, helps reduce rather than intensify price fluctuations.

3.8 Multiple Sales as the Dependent Variable

Table 13 presents results of regressing the price, housing activity and multiple purchase series on the multiple sales data. Eighty-eight percent in the variation of the log of multiple sales is accounted for by the four series on the right hand side of the equation. The level of multiple sales increases with housing activity and with both the current and one month lagged level of multiple purchases. It increases with price levels. These findings are

TABLE 11

LOG LINEAR REGRESSION WITH LOG_e M.BUY$_t$ AS DEPENDENT SERIES

	Vancouver and Burnaby			Vancouver			Burnaby		
	b	T-STAT	SIG.	b	T-STAT	SIG.	b	T-STAT	SIG.
log_e Price$_t$	ne	ne	ne	ne	ne	ne	ne	ne	ne
log_e Price$_{t-1}$	-1.731	-8.608	.0000	-1.591	-3.664	.0010	-1.913	-7.356	.0000
log_e All Sales$_t$	.790	6.156	.0000	.738	2.184	.0369	.784	3.786	.0007
log_e M.Sales$_t$	.564	6.649	.0000	.598	3.522	.0014	.537	5.753	.0000
City	ne	ne	ne	na	na	na	na	na	na
Constant	16.553	6.642	.0000	15.150	2.412	.0222	18.731	5.399	.0000
R^2	.8133			.7734			.8663		
F-Statistic	171.822			34.137			64.774		
Significance	.0000			.0000			.0000		
n. cases	68			34			34		

TABLE 12

PROPORTIONAL CHANGE IN PRICE AND TRANSACTIONS WITH R.M. BUY_t AS DEPENDENT SERIES

	Vancouver and Burnaby			Vancouver			Burnaby		
	b	T-STAT	SIG.	b	T-STAT	SIG.	b	T-STAT	SIG.
R Price$_{t-1}$	-1.299	-3.166	.0024	-1.327	-2.462	.0200	-1.286	-2.051	.0494
R. All Sales$_t$	.7508	4.589	.0000	.6139	2.702	.0114	.833	3.278	.0027
R.M. Sales$_t$	.1839	3.734	.0004	.1966	2.091	.0454	.1834	2.754	.0101
City	ne	ne	ne	na	na	na	na	na	na
Constant	.0354	.664	.5093	.0501	.841	.4073	.0224	.242	.8102
R^2	.5005			.5265			.4949		
F-Statistic	20.708			10.750			9.472		
Significance	.0000			.0001			.0002		
n. cases	66			33			33		

TABLE 13

LOG LINEAR REGRESSION WITH LOG_e M.SELL$_t$ AS DEPENDENT SERIES

	Vancouver and Burnaby			Vancouver			Burnaby		
	b	T-STAT	SIG.	b	T-STAT	SIG.	b	T-STAT	SIG.
Log_e Price$_t$	1.585	7.760	.0000	1.840	7.477	.0000	1.783	5.835	.0000
Log_e Price$_{t-1}$	ne	ne	ne	ne	ne	ne	ne	ne	ne
Log_e All Sales$_t$	ne	ne	ne	.497	2.041	.0505	ne	ne	ne
Log_e All Sales$_{t-1}$	.323	2.174	.0335	.734	3.878	.0006	ne	ne	ne
Log_e M.Buys$_t$	.367	3.757	.0004	.294	3.017	.0053	.409	3.052	.0047
Log_e M.Buys$_{t-1}$	.266	2.428	.0180	ne	ne	ne	ne	ne	ne
City	ne	ne	ne	na	na	na	ne	ne	ne
Constant	-18.998	-8.697	.0000	-26.601	-7.969	.0000	-20.017	-5.586	.0000
R^2	.8806			.8508			.7759		
F-Statistic	116.112			41.326			34.613		
Significance	.0000			.0000			.0000		
n. cases	68			34			34		

consistent with the conclusions developed above: price increases encourage the sale of property held by speculators. This increase in the supply of ownership housing should help reduce further price increases. The effect of both changes in speculative buying and selling, however, cancel to some extent because increases in multiple sales and buys are positively correlated. This means that a part of the changes in speculative sales and buys cancel out and can have no effect on supply and demand conditions.

The additive proportional change model does not yield results with the pooled regression and for the Burnaby data. Table 14 presents the estimated coefficients obtained by using the Vancouver proportional change series and shows that the findings are consistent with those developed by using the log linear model.*

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* The series were entered in steps. The first to enter lists the level of multiple purchases and accounts for 32% of the variation in sales. The estimated coefficient for the purchase series was .9402! If no other series were deemed relevant, then a 10% increase in multiple buys is related to a 9.4% increase in multiple sales. The second step entered the series on all transactions and raised the squared multiple correlation coefficient to .4056. The estimated coefficient for the multiple purchase dropped to .597. The entry of the current price series changed the significance level for the multiple purchase coefficient to .1108. After the lagged price series was entered, the estimated multiple purchase coefficient was again different from zero at the .10 probability level.

TABLE 14

PROPORTIONAL CHANGE IN VANCOUVER HOUSING PRICES
AND TRANSACTIONS WITH R.M. $SELL_t$ AS THE DEPENDENT SERIES

	b	T-STAT	SIG.
R. $Price_t$	2.259	2.182	.0377
R. $Price_{t-1}$	1.475	1.340	.1912
R. All $Sales_t$	.998	2.321	.0278
R.M. $Buys_t$	.610	2.028	.0521
Constant	-.1947	-1.877	.0709
R^2	.4969		
F-statistic	6.914		
Significance	.0005		
n. cases	33		

3.9 Conclusions

The data analysis does not permit the rejection of the null hypothesis asserting that speculative purchases and sales of housing units affect housing prices. Speculators do not substantially affect housing supply and demand conditions. Speculative purchases are higher when prices are low and the sale of houses bought for speculation increase with rising prices. These findings are consistent with the view that speculation in housing, like speculation in other markets, for the most part helps reduce price fluctuations over time.

The conclusions of the analysis do not suggest that speculation has no effect on housing prices. The conclusion is limited to speculation carried out by people who buy and take possession of houses in order to resell them a short time later. Speculative motives may still explain the dramatic price increase occurring in late 1980 and early 1981. How else can we explain these increases? The level of transactions dropped during this period, the number of people buying property decreased. As expectations continued to drive the vendors' asking price upward, fewer sales were completed. Speculative motives and expectations may have remained high, while the aggregate demand by the final buyer - the homeowner - dropped. Expectations may have continued to be high for a period of time after the basis for the expectations eroded. In this sense, speculation on the future price of housing may have caused housing prices to continue upward after demand dropped. Speculation may still explain the price surge of late 1980 and early 1981, but it is the speculation by all actors participating in the housing market and not just that of the "flippers".